performance liquid chromatography is employed for purification. Well known techniques for refolding proteins may be employed to regenerate active conformation when the polypeptide is denatured during isolation and or purification.

Most suitably the enzyme is, for example, at least partially purified to remove other enzymes which might catalyse the destruction of the precursor, the enzyme, or the clavam nucleus. The enzyme may be attached to an insoluble polymeric support.

The process of the present invention is generally carried out in aqueous media, the reaction mixture suitably being maintained in the range of from pH 4 to 9, more suitably, for example, from 6.5 to 9.0, preferably about pH 8.5. The pH is suitably controlled, for example, using buffers, such as, for example, 3-(N-morpholino)propanesulphonic acid buffer at pH 7. Alternatively the pH may be controlled by the addition of a suitable acid or base. The temperature of the reaction should be that suitable for the enzyme employed and is generally in the range of from 15°C to 60°C, preferably about 30°C. The reaction time depends on such factors as concentrations of reactants and cofactors, temperature and pH.

The compound of formula (II) or salt thereof is suitably dissolved, for example, in buffer before mixing with the enzyme. The concentration of precursor solution will depend upon the solubility of the precursor; usually the concentration of the precursor solution is in the range of from 5% w/v to 0.001% w/v. After the reaction is complete, the enzyme may be separated from the reaction mixture and the compound of formula (I), or a salt thereof, isolated by conventional methods. The initial purification of the compound of formula (I), or a salt thereof, conveniently involves a chromatography step. The compound of formula (I) may be isolated in a form where the carboxyl and/or the amino group present is protected and, if desired, the protecting group(s) may be subsequently removed to generate the compound in a pure form.

Salts of the compound of formula (I) may be produced, for example, by treating the unsalified compound with the appropriate acid or base. The compounds, and salts thereof, produced by the above processes, may be recovered by conventional methods.

Compounds of formula (I) possessing two chiral centres may be separated into diastereoisomeric pairs of enantiomers. if so desired, by, for example, fractional crystallisation from a suitable solvent, for example methanol or ethyl acetate or a mixture thereof. The pair of enantiomers or other pairs of enantiomers may be separated into